CLAIMS

1. A target wheel for providing timing information for a crankshaft in an internal combustion engine, the target wheel comprising a substantially circular member having a plurality of teeth, said teeth having variable widths, and said teeth having rising edges distributed in a non-uniform fashion and falling edges distributed in a uniform fashion, wherein said target wheel provides speed and timing information for multiple internal combustion engine configurations.

2. The target wheel of Claim 1 wherein said plurality of different internal combustion engine configurations is selected from the group comprising four cylinder engines, five cylinder engines, six cylinder engines, eight cylinder engines, ten cylinder engines and twelve cylinder engines.

3. The target wheel of Claim 1 target wheel includes fifty-eight teeth and a synchronization pulse region.

4. The target wheel of Claim 1 wherein said falling edges of said teeth are spaced at substantially six degrees apart.

5. The target wheel of Claim 1 wherein at least six of said teeth create a unique combination indicating the position of the said target wheel.

6. A crankshaft system for use with an internal combustion engine in a vehicle comprising:

a crankshaft coupled to a drive train of the vehicle;

a sprocket coupled to said crankshaft to drive a cam shaft in the vehicle; and

a target wheel coupled to said crankshaft, said target wheel having a plurality of teeth, said teeth having variable widths and rising edges and falling edges, said falling edges irregularly positioned on said target wheel, and said rising edges regularly positioned on said target wheel;

whereby said target wheel provides process data for operation of a plurality of internal combustion engine configurations.

7. The crankshaft system of Claim 6 further comprising a cam phaser coupling said camshaft to said sprocket.

8. The crankshaft system of Claim 6 further comprising a sensor sensing said irregular surface to provide an electrical output.

9. The crankshaft system of Claim 8 further comprising an electronic controller coupled to said sensor to interpret said electrical output to determine speed and position of said crankshaft.

10. The crankshaft system of Claim 8 wherein said electrical output comprises a pulse string.

11. The crankshaft system of Claim 10 wherein said electronic controller includes engine control software that is adaptable to said plurality of engine configurations by using selected pulses in said pulse string.

12. The camshaft system of Claim 10 wherein said engine configurations are selected from the group comprising four cylinder engines, five cylinder engines, six cylinder engines, or eight cylinder engines.

13. An internal combustion engine comprising:

an intake manifold for providing air to the internal combustion engine;

a throttle plate controlling the flow of said air;

a fuel injector introducing fuel into said air to form an air fuel mixture;

at least one piston for combusting said air fuel mixture;

a plurality of valves to control intake and exhaust of said at least one piston;

a first camshaft having a plurality of lobes to actuate said exhaust valves;

a sprocket coupled to said first cam shaft to drive said first cam shaft;

a crankshaft to drive said sprocket; and

a target wheel coupled to said crankshaft, said target wheel having a plurality of teeth, said teeth having variable widths and rising edges and falling edges, said falling edges irregularly positioned on said target wheel, and said rising edges uniformly positioned on said target wheel, wherein said target wheel is capable of providing process data for operation of a plurality of internal combustion engine configurations.

14. The internal combustion engine of Claim 13 wherein the internal combustion engine is a four-cycle engine.

15. The internal combustion engine of Claim 13 wherein the internal combustion engine is a direct injection engine.

16. The internal combustion engine of Claim 13 wherein said target wheel includes fifty-eight teeth and a synchronization region.

17. The internal combustion engine of Claim 16 wherein at least six of said fifty-eight teeth form a unique combination, whereby engine synchronization may be determined from said at least six teeth.

18. The internal combustion engine of Claim 13 further comprising a cam phaser coupled to said camshaft.

19. The internal combustion engine of Claim 13 further comprising a sensor sensing said irregular surface to provide an electrical output.

20. The internal combustion engine of Claim 13 further comprising an electronic controller coupled to said sensor to interpret said electrical output to determine speed and position of said camshaft.